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ABSTRACT

The purpose of this investigation was to examine the cognitive styles of 144 education majors over a 2-to-3-year period culminating in the internship experience. The hypothesis was that scores on the Group Embedded Figures Test (GEFT) following the internship would be more field-independent, and the intent was to document the influence of university coursework and internship experience on cognitive style. The 131 female and 13 male students were tested in their freshman years and after their internships. Initial and post-field-dependent and field-independent scores, course grades from six courses, and gender were determined for all subjects. Results indicate that subjects who were field-dependent, as identified through scores on the GEFT during their first education course, tend to become more field-independent by the end of their internship experiences. Initial scores appear to be good predictors of posttest scores. Males tend to be more field-independent than females, although females perform better academically across curricula. Grades in all courses indicate that students scoring in the middle category on the GEFT are more likely to make "C" and above than students falling in the high and low GEFT categories. Twelve tables and one figure present study findings. (Contains 17 references.) (SLD)

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ED 366 641

DYNAMISM OF COGNITIVE STYLE OF PREPROFESSIONAL EDUCATORS

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The Dynamism of Cognitive Style of Preprofessional Educators

Cognitive style refers to preferred perceptual style of the learner in responding to the environment. Witkin (1973) categorized styles as field-dependent (FD) and field-independent (FI). FD learners are attuned to learning and retaining social information; they enjoy social interaction and favor structure; they seek teacher direction and feedback and are affected by criticism; they benefit from instruction in problem solving. FI learners, on the other hand, are task-oriented and set self-regulated goals; they tend to organize and analyze a plan independently of the teacher; they seek less guidance in problem solving than do FD learners. They prefer to work individually and they are affected less by criticism than are FD learners (Piotrowski, 1984; Witkin, Moore, Goodenough, & Cox, 1977). FI learners prefer relatively impersonal situations and maintain greater psychological and personal space from others than do FD learners (Greene, 1976). Males tend to be more field-independent than females, although it is unknown if cultural differences are involved (Fritz, 1990; Sigel & Brodzinsky, 1977). It appears that cognitive style remains somewhat fixed, even as maturational changes occur (Witkin, 1976).

Research indicates that cognitive style is an important variable that can affect the educational process in several ways.

It can affect students' vocational choices and academic preferences (Highhouse & Doverspike, 1987; Koroluk, 1987); it can affect students' academic performance (Canfield, 1988; Matthews, 1991; Wieseman, Portis, & Simpson, 1992a; 1992b; 1992c); it can affect teaching style and teacher-student interaction (Ramirez, 1974; Witkin, 1973; 1976); it can affect teachers' modes of presentation (Battle & Fabick, 1975).

Purpose

The current study is a continuation of previous research examining cognitive styles of education majors at a southern university. The initial study identified cognitive styles of students enrolled in an introduction to education course through administration of the Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971). The second study investigated the correlation between cognitive style and course grades, and the third study investigated grades of these subjects across five general studies courses. The purpose of the current investigation is to examine cognitive styles of 144 students over a two-to-three year span of time culminating in the internship experience. The hypothesis of the study is that scores on the GEFT following the internship will tend to be more field-independent. The intention of this study is not to imply superiority of one cognitive style over another, but to document the influence of university coursework and internship experiences on cognitive style.

Method

The researchers administered the Group Embedded Figures Test during part of one class session in every section of a freshman level introduction to education course for two academic years (1989-90 and 1990-91). The test was repeated as the same students completed their internship during the senior year. Course grades were also collected for the students in six courses required of all undergraduate education majors at a southern university.

Subjects

The subjects were students enrolled in a freshman level introductory education course at a southern university. Data from 537 students enrolled in the course were collected, and results from that study are reported in Wieseman, Portis, and Simpson (1992a). The same students are being retested at the completion of the internship. This research reports the retesting of the students who completed their internship in Spring and Fall of 1992, as well as Winter and Spring of 1993. Data were collected from 144 students. The researchers plan to collect data from the other students as they complete the internship. One hundred thirty-one students were female and thirteen were male.

Results

Initial and post field-dependent/independent scores, course grades from six courses, and gender were collected for all subjects in the study. The means and standard deviations for the field-

dependent/independent scores are reported by gender in Table 1.

Insert Table 1 about here

The mean field-dependent/independent scores for all students and both females and males were higher during the internship. Scores on the Group Embedded Figures Test range from 0 to 18. Higher scores indicate independent learners and lower scores are indicative of dependent learners. Higher mean scores during internship suggest that education students became more independent learners as they progressed through the teacher-preparation program. There was a significant difference ($T = -2.46$, $p = 0.025$) between the female and males students on the initial testing; however, there was not a significant difference at the completion of the internship.

The box plot is another technique for examining the central tendencies of data. The box plot represents the range of scores from the third quartile (presented at the top of the box), and the first quartile score (presented at the bottom of the box). The middle quartile (group median) is reported with a line and the mean score is reported with an asterisk. The graphic representation of the middle 50% of the students is shown in the box. The box plots for the field-dependent/independent scores by gender for the initial and intern testing are reported in Figure 1. The box plot

further illustrates the tendency for the students to have higher scores at the completion of the internship, thus indicating the students became more field-independent.

Insert Figure 1 about here

Course grades were collected for the 144 students in six courses required of all undergraduate education majors. The courses selected were introduction to education (FED 104, Introduction of Professional Education); history (HY 102, World History); English (EH 102, English Composition II); biology (BI 101, Principles of Biology); speech (COM 101, Introduction to Human Communication); and fine arts (one of the appreciation or history courses in one of the arts). The means and standard deviations for the course grades along with T Test results are reported by gender in Table 2.

Insert Table 2 about here

Female students had higher course grade means than males for all six courses. Comparison between the grades of male and female students in each course produced T scores that were not statistically significant. Students enrolled in the internship are awarded satisfactory/unsatisfactory grades and not traditional

letter grades; for this reason intern grades are not reported. Students tended to have higher grades in FED 104 and lower grades in HY 102. One student did not have a fine arts grade on the transcript, so the total number and number of female subjects in this category are different from the other courses.

The course grades, initial and intern field-dependent/independent scores, were analyzed by calculating the Pearson Correlation Coefficients. The relationship between the student scores and grades in the six courses are reported in Table 3.

Insert Table 3 about here

Significant correlations indicate the null hypothesis that the correlations equal zero must be rejected and we conclude there was a strong relationship. The significant correlations between the initial and intern embedded figures scores indicate that students tended to follow the similar patterns on both testings. The initial and intern embedded figures scores were not found to be significantly correlated to the grades received in FED 104. Significant correlations were not reported between the intern embedded figures scores and grades in five courses. A significant correlation was found between the intern scores and grades in the Fine Arts. Significance was found between grades in the following courses:

FED 104 and HY 102, BI 101.

HY 102 and EH 102, BI 101, COM 101, Fine Arts.

EH 102 and BI 101, COM 101, Fine Arts.

BI 101 and COM 101, Fine Arts.

COM 101 and Fine Arts.

This finding suggests that the grades received by students in these courses followed similar patterns.

A difference score was calculated comparing course grades in the six courses two at a time. The difference scores and T Test are reported in Table 4. The courses listed second were subtracted from the courses listed first. Thus, positive mean difference scores indicate the larger grade was received in the course listed first.

Insert Table 4 about here

Significant mean difference scores were found between FED 104 and the other courses, except Fine Arts. The positive mean scores also indicate the FED 104 course grades were generally higher than the course grades in the other five courses. Significant mean difference scores were also found between each of HY 102, EH 102, BI 101 and COM 101, as well as between each of EH 102, BI 101 and Fine Arts.

The course grades and embedded figures scores for the interns

were further analyzed by Analysis of Variance (ANOVA). An ANOVA was calculated by partitioning the course grades for each course and intern scores as the dependent variable. ANOVA results plus group means and standard deviations are reported in Table 5.

Insert Table 5 about here

While some differences exist between the mean field-dependent/independent scores for students receiving various grades in each of the six courses, these differences were not sufficiently large enough to indicate significant differences. The distribution of course grades in all of the six courses reflect some variability, but most students received course grades of As and Bs with some Cs and even fewer Ds and Fs. The students involved in this study were screened twice, before admission into Professional Education and before admission into Internship. Therefore, students not maintaining a 2.50 GPA are screened out of the School of Education.

Further analysis of the relationships between field-dependence/independence and course grades was achieved through the construction of expectancy tables. The initial and intern group embedded figures scores were averaged for each student. Both scores are measures of field-dependence/independence, so an average of the two scores was derived to describe this attribute. The average group embedded figures scores

were then sorted into three groups, 0-5 (low), 6-12 (middle), and 13-18 (high). The distribution of course grades for each of the three groups is reported in Table 6.

Insert Table 6 about here

Chi-square analysis seems appropriate for such data; however, chi-square analysis is not a valid test when data cells have expected values less than 5, which was the case with the data. Fifteen percent (15%) of the students had mean embedded figures scores in the 0-5 category, 47% in the 6-12 category, and 38% in the 13-18 category. Two questions regarding the data were asked: Which course grades had the highest expectancy in each of the three categories, and for the grades of A, B, and C, which categories had the highest expectancy? The course grades with the highest expectancies are reported by category in Table 7.

Insert Table 7 about here

In the 0-5 category, students would be expected to make a grade of A in one or two courses and a grade of B in four or five courses. In the 6-12 category, students would be expected to make a grade of A in two or three courses and Bs in two or four courses. In the 13-18 category, students would be expected to make an A in

three or four courses, and Bs in one or three courses. When all students are considered, students could expect As in two courses (FED 104 and Fine Arts) and Bs in the other four courses. More As could be expected as the category groupings reflected a more field-independent cognitive style. The number and percent of students in the three categories earning course grades of As, Bs, and Cs are reported in Tables 8, 9, 10, and 11.

Insert Tables 8, 9, 10, and 11 about here

Course grades of A were awarded most frequently to students in the middle category (6-12) in the five courses. Course grades of B would be expected for students in the middle category in five courses. Only in COM 101 would students in the 13-18 category be expected to obtain a grade of B. Students in the middle category received grades of C in all six courses. The distribution of the three course grades matches very closely the distribution of students in the three categories. The percent of As, Bs, and Cs are reported by categories in Table 12. This finding agrees with the previous analysis where no significant difference was found in the factorial ANOVA where course grades and field-dependence/independence were analyzed.

Insert Table 12 about here

Finally, the initial and the intern measures of field-dependence/independence were compared. The mean initial group embedded figures score was 9.96, and the mean intern score was 11.60. Thus, as students matriculate through the teacher-preparation program, they tend to become more field-independent. Eighty-nine of the 144 students had higher intern scores than initial scores. Regression analysis indicated the initial scores were good predictors of the intern scores ($R^2 = 0.57$). The T Test comparing the intern and initial scores resulted in a value of 5.88 ($p = 0.0001$).

Discussion

The results of this investigation indicate that education majors who are field-dependent, identified through scores on the Group Embedded Figures Test during their first education course, tend to become more field-independent by the end of their internship experiences. This finding differs from that of Witkin (1976). Initial scores appear to be good predictors of scores on the post test.

Males tend to be more field-independent than females, although females performed better academically across curricula. A surprising finding to the investigators was that grades (Tables 7,

8, 9, 10, and 11) in all courses examined indicate students scoring in the middle category (6-12) on the GEFT were more likely to make A, B, and C than students falling in the high (13-18) and low (0-5) categories. Significant correlations existing between grades among courses (Table 3) suggest that grades follow similar patterns.

Further Research

Continuing research that employs the same design and instrument would increase the number of subjects and enhance the power of the results. Additional research comparing cognitive style and academic major would add a further dimension to current findings; research indicates that cognitive style influences vocational choice and academic performance (Highhouse & Doverspike, 1987). Further study might focus on the match-mismatch of student and instructor cognitive styles since research implies that the match-mismatch of cognitive styles may be a factor in student academic performance (Witkin, 1976).

Conclusion

Several significant points emerged from the current study. Students who are successful academically in one area of interest will generally be successful in other academic areas. Students who possess characteristics of both the field-dependent and field-independent learners are more likely to make the A, B, and C grades. Males tend to be more field-independent than females, but females out-perform males academically. Education majors who are

academically successful in their college career tend to become more field-independent during their college career.

References

Battle, J., & Fabick, S. (1975). Validity of college students' evaluations of instructors' competence. Psychological Reports, 37, 112-114.

Canfield, A. A. (1988). Learning Styles Inventory Manual. Los Angeles: Western Psychological Services.

Fritz, R. L. (1990). Field-dependence cognitive styles in the secondary marketing education classroom, with implications for application-level reasoning and problem solving behavior. Paper presented at the National Marketing Education Research Session of the American Vocational Association Convention, Cincinnati, OH. (ERIC Document Reproduction Service No. ED 330 817).

Greene, L. R. (1976). Effects of field dependence on affective relations and compliance in dyadic interactions. Journal of Personality and Social Psychology, 34, 567-577.

Highhouse, S., & Doverspike, D. (1987). The validity of the learning style inventory 1985 as a predictor of cognitive style and occupational preference. Educational and Psychological Measurement, 47(3), 749-753.

Koroluk, L. E. (1987). Educational vocational implications of field dependence-independence for secondary school graduates. Canadian Journal of Counselling, 21, 59-68.

Matthews, D. B. (1991). The effects of learning styles on grades of first-year college students. Research in Higher Education, 32(3), 253-268.

Oltman, P. K., Raskin, E., & Witkin, H.A. (1971). Group embedded figures test. Palo Alto: Consulting Psychologists Press.

Piotrowski, C. (1984). Locus of control, field dependence-independence in learning and memory. (ERIC Document Reproduction Service No. ED 247 495).

Ramirez, M. (1974). Multicultural education in a pluralistic society. New York: Academic Press, Inc.

Sigel, E. E., & Brodzinsky, D. M. (1977). Individual differences: A perspective for understanding intellectual development. In H. Hom & P. Robinson (Eds.) Psychological Processes in Early Education. New York: Academic Press.

Wieseman, R. A., Portis, S. C., & Simpson, F. M. (1992a). A follow-up study on learning styles: Using research to facilitate educational excellence. (ERIC Reproduction Service No. ED 343 867).

Wieseman, R. A., Portis, S. C., & Simpson, F. M. (1992b). An analysis of the relationship between cognitive styles & grades: New perspectives on success or failure of preservice education majors. College Student Journal, 26(4), 512-517.

Wieseman, R. A., Portis, S. C., & Simpson, F. M. (1992c). Perspectives on entering teachers in the new south: Comparison of cognitive style and grades in general studies coursework. Paper presented at Southeastern Regional Association of Teacher Educators' conference, Jackson, MS, November 6, 1992.

Witkin, H.A. (1973). The role of cognitive style in academic performance and in teacher-student relations. Princeton, NJ: Educational Testing Service.

Witkin, H.A. (1976). Cognitive style in academic performance and in teacher-student relations. In S. Messick (Ed.) Individuality in learning: Implications of cognitive styles and creativity for human development. San Francisco: Jossey-Bass.

Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. W. (1977). Field-dependent and field-independent cognitive style and their educational implication. Review of Educational Research, 47, 1-64.

Table 1

Mean and Standard Deviation Field Dependent/Independent Scores by Gender

Group	N	%	Mean	SD	T	P
Initial Scores						
All Students	144	100	9.96	4.99	-2.46*	0.025
Female	131	91	9.70	5.03		
Male	13	9	12.54	3.84		
Intern Scores						
All Students	144	100	11.60	4.58	-1.79	0.09
Female	131	91	11.41	4.60		
Male	13	9	13.54	4.01		

Figure 1

Box Plot by Gender of Group Embedded Figures Scores

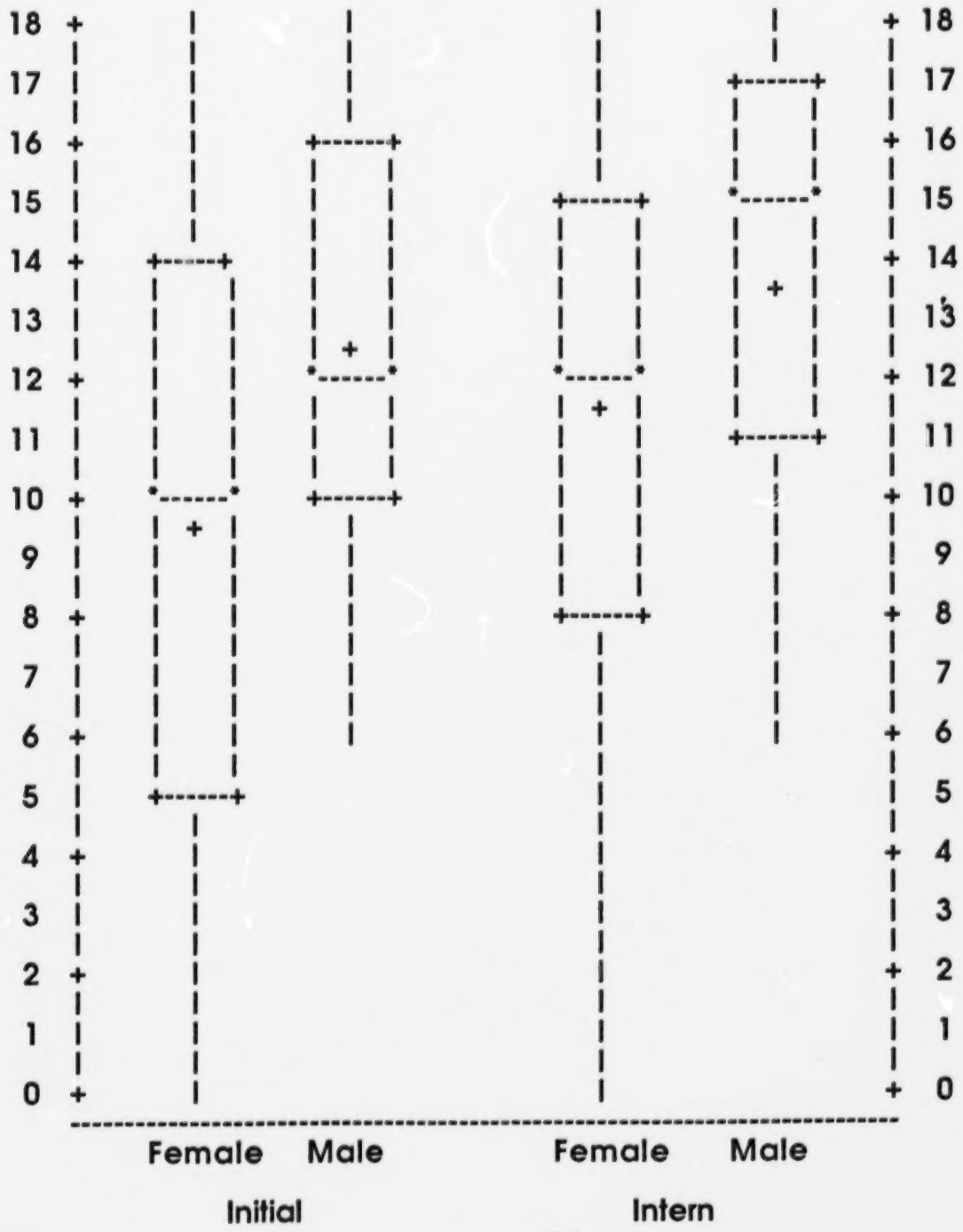

Table 2

MEAN AND STANDARD DEVIATION OF COURSE GRADE BY GENDER
And T Test

COURSE	N	Mean	SD	T	p
FED 104	144	3.46	0.65	1.19	0.25
Female	131	3.48	0.64		
Male	13	3.23	0.73		
HY 102	144	2.81	0.90	1.72	0.10
Female	131	2.86	0.88		
Male	13	2.38	0.96		
EH 102	144	3.06	0.79	1.52	0.15
Female	131	3.09	0.79		
Male	13	2.77	0.73		
BI 101	144	2.92	0.93	2.10	0.053
Female	131	2.97	0.92		
Male	13	2.38	0.96		
COM 101	144	3.24	0.72	1.42	0.17
Female	131	3.27	0.70		
Male	13	2.92	0.86		
Fine Arts	143	3.34	0.81	2.04	0.059
Female	130	3.38	0.81		
Male	13	2.92	0.76		

Table 3

Correlation of Course Grades and Group Embedded Figures Scores

Courses	Initial	Intern	FED 104	HY 102	EH 102	BI 101	COM 101	Fine Arts
Initial		0.76* 0.0001	0.11	0.03	0.07	-0.005	0.03	0.12
Intern			0.11	0.06	0.11	0.02	0.03	0.17* 0.05
FED 104				0.34* 0.0001	0.28* 0.0005	0.25* 0.0026	0.27 0.0011	0.20 0.01
HY 102					0.39* 0.0001	0.38* 0.0001	0.45* 0.0001	0.30* 0.0003
EH 102						0.41* 0.0001	0.42* 0.0001	0.29* 0.0006
BI 101							0.39* 0.0001	0.27* 0.0013
COM 101								0.34* 0.0001
Fine Arts								

Table 4

Mean Difference Scores For Course Grades and T Test

Courses		Mean	SD	T	p
FED 104	- HY 102	0.64	0.91	8.40*	0.0001
	- EH 102	0.40	0.86	5.51*	0.0001
	- BI 101	0.54	1.00	6.53*	0.0001
	- COM 101	0.22	0.83	3.12*	0.0022
	- Fine Arts	0.13	0.93	1.71	0.09
HY102	- EH 102	-0.24	0.93	-3.13*	0.002
	- BI 101	-0.10	1.02	-1.14	
	- COM 101	-0.42	0.87	-5.78*	0.0001
	- Fine Arts	-0.52	1.02	-6.07*	0.0001
EH 102	- BI 101	0.15	0.95	1.85	
	- COM 101	-0.18	0.82	-2.65*	0.0089
	- Fine Arts	-0.27	0.96	-3.40*	0.0009
BI 101	- COM 101	-0.33	0.93	-4.21*	0.0001
	- Fine Arts	-0.41	1.06	-4.64*	0.0001
COM 101	- Fine Arts	-0.09	0.89	-1.23	

Table 5

Comparison of Course Grades by Intern Embedded Figures Scores

Course	Grade	N	Mean	SD	DF	F Value	P
FED 104					2, 141	1.01	0.37
	A	78	11.92	4.71			
	B	54	11.52	4.18			
	C	12	9.2	5.37			
HY 102					3, 140	1.07	0.36
	A	38	11.74	4.67			
	B	51	11.65	4.67			
	C	46	11.96	4.44			
	D	9	9.0	4.30			
EH 102					3, 140	2.13	0.10
	A	46	12.22	4.04			
	B	63	11.83	4.60			
	C	34	10.18	5.00			
	F	1	18				
BI 101					3, 140	0.37	0.78
	A	48	11.83	4.16			
	B	45	11.24	5.05			
	C	42	11.95	4.90			
	D	9	10.56	2.65			
COM 101					2, 141	0.19	0.83
	A	59	11.86	4.62			
	B	61	11.34	4.63			
	C	24	11.63	4.51			
Fine Arts					3, 139	1.79	0.15
	A	75	12.13	4.23			
	B	45	11.76	4.94			
	C	19	10.63	3.21			
	D	4	7.5	7.59			

Table 6

Course Grades By Embedded Figures Grouping

Course	Group	A	B	C	D	N
FED 104						
	0 - 5	14 (64%)	6 (27%)	2 (9%)	0	22
	6 - 12	29 (43%)	33 (49%)	6 (9%)	0	68
	13 - 18	35 (65%)	15 (28%)	4 (7%)	0	54
	All	78 (54%)	54 (38%)	12 (8%)		144
HY 102						
	0 - 5	5 (23%)	10 (45%)	5 (23%)	2 (9%)	22
	6 - 12	19 (28%)	22 (32%)	22 (32%)	5 (7%)	68
	13 - 18	14 (26%)	19 (35%)	19 (35%)	2 (4%)	54
	All	38 (26%)	51 (35%)	46 (32%)	9 (6%)	144
EH 102						
	0 - 5	6 (27%)	9 (41%)	7 (32%)	0	22
	6 - 12	21 (31%)	31 (46%)	16 (24%)	0	68
	13 - 18	19 (35%)	23 (43%)	11 (20%)	1 (2%)	54
	All	46 (32%)	63 (44%)	34 (24%)	1 (1%)	144
BI 101						
	0 - 5	6 (27%)	10 (45%)	6 (27%)	0	22
	6 - 12	24 (35%)	18 (26%)	19 (28%)	7 (10%)	68
	13 - 18	18 (33%)	17 (31%)	17 (31%)	2 (4%)	54
	All	48 (33%)	45 (31%)	42 (30%)	9 (6%)	144
COM 101						
	0 - 5	8 (36%)	10 (45%)	4 (18%)	0	22
	6 - 12	28 (41%)	28 (41%)	12 (18%)	0	68
	13 - 18	23 (43%)	23 (43%)	8 (15%)	0	54
	All	59 (41%)	61 (42%)	24 (17%)		144
Fine Arts						
	0 - 5	8 (38%)	8 (38%)	3 (14%)	2 (10%)	22
	6 - 12	38 (56%)	18 (26%)	11 (16%)	1 (1%)	68
	13 - 18	59 (54%)	19 (35%)	5 (9%)	1 (2%)	54
	All	75 (52%)	45 (31%)	19 (13%)	4 (3%)	144

Table 7

Expected Course Grade By Category

Course	0-5	6-12	13-18	All Students
FED 104	A	B	A	A
HY 102	B	B/C	B/C	B
EH 102	B	B	B	B
BI 101	B	A	A	B
COM 101	B	A/B	A/B	B
FINE ARTS	A/B	A	A	A

Table 8

Number and Percent of Students Receiving Course Grade of A By Category

Course	0 - 5	6 - 12	13 - 18	N
FED 104	14 (18%)	29 (37%)	35 (45%)	78
HY 102	5 (13%)	19 (50%)	14 (37%)	38
EH 102	6 (13%)	21 (46%)	19 (41%)	46
BI 101	6 (13%)	24 (50%)	18 (38%)	48
COM 101	8 (14%)	28 (47%)	23 (39%)	59
Fine Arts	8 (11%)	38 (51%)	29 (39%)	75
TOTAL	47 (14%)	159 (46%)	138 (40%)	344

Table 9

Number and Percent of Students Receiving Course Grade of B By Category

Course	0 - 5	6 - 12	13 - 18	N
FED 104	6 (11%)	33 (61%)	15 (28%)	54
HY 102	10 (20%)	22 (43%)	19 (37%)	51
EH 102	9 (14%)	31 (49%)	23 (37%)	63
BI 101	10 (22%)	18 (40%)	17 (38%)	45
COM 101	10 (16%)	28 (46%)	23 (38%)	61
Fine Arts	8 (18%)	18 (40%)	19 (42%)	45
TOTAL	53 (16%)	150 (44%)	116 (34%)	319

Table 10

Number and Percent of Students Receiving Course Grade of C By Category

Course	0 - 5	6 - 12	13 - 18	N
FED 104	2 (17%)	6 (50%)	4 (33%)	12
HY 102	5 (11%)	22 (48%)	19 (41%)	46
EH 102	7 (21%)	16 (47%)	11 (32%)	34
BI 101	6 (14%)	19 (45%)	17 (40%)	42
COM 101	4 (17%)	12 (50%)	8 (33%)	24
Fine Arts	3 (16%)	11 (58%)	5 (26%)	19
TOTAL	27 (15%)	86 (47%)	64 (35%)	177

Table 11

Category Expected To Receive Course Grade

Course	A	B	C
FED 104	13-18	6-12	6-12
HY 102	6-12	6-12	6-12
EH 102	6-12	6-12	6-12
BI 101	6-12	6-12	6-12
COM 101	6-12	6-12	6-12
FINE ARTS	6-12	13-18	6-12
All Students	6-12	6-12	6-12

Table 12

Percent of Students Receiving As, Bs, and Cs By Category

Category	A	B	C	All Students
0-5	14	16	15	15
6-12	46	44	47	47
13-18	40	34	35	38